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EXAMINER	
STRAUB	

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ART UNIT	PAPER NUMBER
1103	7

DATE MAILED: 07/22/94

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 4 APR 94 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☒ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 9-15 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☒ Claims 1-8 have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 9-15 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

The "person having ordinary skill" in this art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this case reasonably reflect this level of skill.

Claims 9-13 and 15 are rejected under 35 U.S.C. § 103 as being unpatentable over Bezzi et al '200.

Bezzi et al '200 fairly shows the manufacture of beads from a hydrolyzable feed, which is processed via the instant unit process steps. Bezzi et al fairly shows the formation of droplets by vibration of a droplet forming hand, the use of a reactive atmosphere (ammonia gas) to pregel the feed, generation a foam layer on top of the aqueous ammonia solution to break the fall of

the pregelled droplets, completion of the gelation in the aqueous ammonium hydroxide bath followed by drying and calcining pellets to the corresponding oxide.

Note abstract, figure 1 column 1 lines 15-30, column 2 lines 10-20, column 3 lines 19-22 and the claim.

While Bezzi et al -200 does not explicitly recite alumina bead manufacture, it would have been obvious to one of ordinary skill in the art of metal oxide bead formation and who is well aware that alumina beads are routinely made by gelling droplets to employ the process of Bezzi et al to make alumina beads from an alumina precursor feed solution. This is considered particularly obvious since in column 1 lines 8-9 and 49-50 Bezzi et al -200 teaches to employ his process to make spherical particles for catalysis, which are commonly made of alumina.

The particular numerical limitation of claims 11, 12, and 15 are a matter of routine optimization of the process of Bezzi et al to obtain the particle size desired. In re Mostovich 144 USPQ 38 In re Boesch 205 USPQ 215 (219). Further in view of the format of the claims (37 CFR 1.75(e) or Jepson form) the viscosity drying temperatures and calcination temperatures are admitted to be known in the art.

Claims 9-13 and 15 are rejected under 35 U.S.C. § 103 as being unpatentable over Bezzi et al '200 as applied to claims 9-

13 and 15 above, and further in view of Takami and Sanchez et al.

Bezzi et al is generic to the production of beads from materials which are hydrolyzable with ammonia and ammonium hydroxide such as material used for catalysts (column 1 lines 6-9). As shown by Sanchez et al, Claim 1 and Takami (claim 1) the production of aluminum oxide beads via drop forming method is conventional. It would have been obvious to one of ordinary skill in the art to form aluminum oxide beads using the bead forming process of Bezzi et al because Sanchez et al and Takami show that aluminum beads are routinely formed in the art, and because all three references show the aluminum oxide beads that they form the same utility in catalytic processes.

Claims 9-15 are rejected under 35 U.S.C. § 103 as being unpatentable over Bezzi et al -200 taken alone or with Takami et al or Sanchez et al as applied to claims 9-13 and 15 above, and further in view of Landis or DeHaven et al.

While Bezzi et al does not show the use of a ring nozzle for the formation of droplets, the use of ring nozzles to provide a plurality of streams of droplets to be solidized in a drop tower is conventional and shown by Landis (Figure item 4) and DeHaven who shows a vibrating ring nozzle in his figures. The use of conventional ring nozzles because of their expected increased production of droplets over a single nozzle would have been

obvious to one of ordinary skill in the art to employ in the process of Bezzi et al.

While this combination of a ring nozzle into the process of Bezzi et al would not specifically tach the supply of the ammonia from the inside of the ring nozzle, in view of the requirement that each of the droplets formed enter into the aqueous gelling medium of Bezzi et al with the same degree of gelation, it would have been obvious to one of ordinary skill in the art to provide a uniform ammonia atmosphere for the ring of droplets from the nozzle either by providing an annular supply of ammonia from outside the ring or by providing an axial supply from inside the ring. Supply from the inside of the ring would have been obvious since this ammonia supply such as a pipe would be smaller and less costly than an annular ring supplying ammonia from the outside of the ring.

Applicants arguments were not persuasive.

The urging that Bezzi et al does not provide ammonia as a reactive gas or an ammonia solution apparently is based on ignoring the examples of Bezzi which exemplifies what applicants urge is not taught.

The urging that the other references applied do not anticipate the instant claims while true, is not germane to a rejection under 35 USC 103 as obvious over the references as

combined.

No claims are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

Any inquiry concerning this communication should be directed to Gary Straub at telephone number (703) 308-0661.

GARY P. STRAUB
PRIMARY PATENT EXAMINER
ART UNIT 113

G.Straub:mm
July 20, 1994